UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,367	07/13/2006	Gideon Kutz	SC13079EI	5727

23125   7590   04/03/2009

FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729

EXAMINER
NGUYEN, KHAI M

ART UNIT	PAPER NUMBER
2819	

NOTIFICATION DATE	DELIVERY MODE
04/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USADOCKETING@FREESCALE.COM

Office Action Summary	Application No.	Applicant(s)
	10/596,367	KUTZ ET AL.
	Examiner	Art Unit	
	KHAI M. NGUYEN	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/13/2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *Fig. 1 (6/9/2006)* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *6/9/2006*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Information Disclosure Statement

2.   An initiated copy of the information disclosure statement(s) (IDS) submitted on

June 9, 2006 is attached herewith.

Specification

3.   The application has not been checked to the extent necessary to determine the

presence of all possible typographical and grammatical errors. However, Applicant's

cooperation is requested in correcting any errors of which he/she may become aware in

the application.

4.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

5.   The continuing data should be inserted before paragraph 1 of the specification.

6.   The following guidelines illustrate the preferred layout for the specification of a
utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should
include the following sections in order. Each of the lettered items should appear in
upper case, without underlining or bold type, as a section heading. If no text follows the
section heading, the phrase "Not Applicable" should follow the section heading:

   (a) TITLE OF THE INVENTION.
   (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
   (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
        DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
    COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37
    CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A
    "Sequence Listing" is required on paper if the application discloses a
    nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if
    the required "Sequence Listing" is not submitted as an electronic
    document on compact disc).

Drawings

7.   Figure 1 should be designated by a legend such as --**Prior Art**-- because only

that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of
making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph because claim 1

appears to recite a decoder with a single means (i.e. a decoding element) → see,

MPEP 2164.08 (a).

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

a.   Claims 1 & 4 are rejected under 35 U.S.C. 102(b) as being anticipated by

Park (USP No. 6,166,667), cited by applicants.

Regarding claim 1, Park discloses a decoder (Fig. 4/Fig. 5 – col. 2, lines 62-67)

comprising:

a decoding element (100 of Fig. 4 or 5) arranged to operate in a first mode for

decoding a turbo encoded data stream and in a second mode for decoding a viterbi

encoded data stream (col. 8, lines 40-65), wherein:

the decoder (Fig. 4/Fig. 5 – col. 2, lines 62-67) is characterized (by CPU 82 of

Fig. 4) in that the decoding element (100) is responsive to a first control signal (S1,

S2...S5) for switching from the first mode to the second mode during decoding of a

turbo code block (col. 7, lines 27-57); and

responsive to a second control signal (S1, S2...S5) for switching from the second

mode to the first mode to allow continued decoding of the turbo code block (col. 7, lines

27-57).

Regarding claim 4, Park discloses (Fig. 4/Fig. 5 – col. 2, lines 62-67) the

decoding element 100 of claim 1 is arranged/configurable to switch from the first mode

to the second mode after an iteration of the decoding of the turbo code block has been

complete (line 40 of col. 8 to line 27 of col. 9).

b.   Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by

Seo (USP No. 7,149,951).

Regarding claim 1, Seo discloses a decoder (of Fig. 1/Fig. 2 – col. 4, lines 39-42)

comprising:

a decoding element (Viterbi/Turbo decoding units of Fig. 1 or 2) arranged to

operate in a first mode for decoding a turbo encoded data stream and in a second mode

for decoding a viterbi encoded data stream, wherein:

the decoder (Fig. 1 or 2) is characterized (by CPU 40 or 400) in that the decoding

element (the Viterbi/Turbo decoding units) is responsive to a first control signal for

switching from the first mode to the second mode during decoding of a turbo code block

(col. 1, lines 37-65; col. 5, lines 26-35; col. 6, lines 25-30); and

responsive to a second control signal for switching from the second mode to the

first mode to allow continued decoding of the turbo code block (col. 1, lines 37-65; col.

5, lines 26-35; col. 6, lines 25-30).

Regarding claim 2, Seo discloses the decoder of claim 1 is configurable to store

data generated during the decoding of the turbo code block (col. 6, lines 30-50).

c.   Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by

Bickerstaff et al.'s article "A Unified Turbo/Viterbi Channel Decoder for 3GPP

Mobile Wireless in 0.18-µm CMOS" - which cited by the applicants - hereinafter

referred to as "Bickerstaff".

Regarding claim 1, The Bickerstaff's article discloses a dual mode decoder (see

Figs. 4, 5, and 7) apparatus which is capable of operating in a first mode for decoding a

turbo encoded data stream and in a second mode for decoding a viterbi encoded data

stream (see the "III. Architecture" section), wherein:

the decoder (of Figs. 4, 5, and 7) is characterised in that the decoding element

(Trellis Processor of Fig. 5 – paragraph 1 of the "III. Architecture" section) is responsive

to a first control signal for switching from the first mode to the second mode during

decoding of a turbo code block (page 1557 of the article); and

responsive to a second control signal for switching from the second mode to the

first mode (Viterbi/Turbo modes) to allow continued decoding of the turbo code block

(page 1557 of the article).

Regarding claim 2, The Bickerstaff's article discloses that their decoding element is arranged to store data generated during the decoding of the turbo code block (page 1557 – "Turbo mode" section and Fig. 7).

Regarding claim 3, The Bickerstaff's article discloses the decoder according to claim 2, wherein the decoding element (Trellis Processor of Fig. 5 – paragraph 1 of the "III. Architecture" section) arranged to retrieve the stored data generated during the decoding of the turbo code block to allow continued decoding of the turbo code block (page 1557 – "Turbo mode" section and Fig. 7).

Regarding claim 4, The Bickerstaff's article discloses the decoder according to claim 1, wherein the decoding element (Trellis Processor of Fig. 5 – paragraph 1 of the "III. Architecture" section) is arranged to switch from the first mode to the second mode after an iteration of the decoding of the turbo code block has been complete (see the "III. Architecture" section).

Regarding claim 5, The Bickerstaff's article discloses the decoder according to claim 1, wherein the decoding element comprises a first logic element (see page 1557 – "Turbo mode" section) that is arranged to calculate forward recursion/backward recursion metrics for a turbo encoded data stream when the decoder element is operating in the first mode and to calculate path metrics and survivor path metrics for a viterbi encoded data stream when the decoder element is operating in the second mode (see page 1557 – "Viterbi mode").

Regarding claim 6, The Bickerstaff's article discloses the decoder according to claim 2, wherein the decoding element further comprises a second logic unit ("Viterbi

mode/Turbo mode" sections) that is arranged to calculate a posteriori data for a turbo encoded data stream using the forward recursion/backward recursion metrics generated by the first logic unit (page 1557, left col., second paragraph and right col., fourth paragraph).

Regarding claim 7, The Bickerstaff's article discloses the decoder according to claim 2, wherein the decoding element further comprises a memory (EPHM block of Fig. 4) that is arranged to store forward recursion/backward recursion metrics generated by the first logic unit when the decoding element is operating in the first mode and to store path metrics and survivor path metrics generated by the first logic unit when the decoding element is operating in the second mode (see, the "III Architecture" section).

Prior Art

10.   The prior art made of record and not relied upon is considered pertinent to applicant's disclose (notes: all references cited on PTO-892 Form attached herewith).

Contact Information

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571-272-1809. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Khai M. Nguyen/
Primary Examiner, Art Unit 2819
Voice: 571-272-1809